# Publications and Presentations by SURE and GREF Students working on DOE OBER Global Change Research Projects

# Published:

- **Ainsworth, E.A.**, Davey, P.A., Bernacchi, C.J., Dermody, O.C., Heaton, E.A., Moore, D.J., Morgan, P.B., Naidu, S.L., Yoo, H., Zu, X., Curtis, P.S., and Long, S.P., "A meta-analysis of elevated [CO2] effects on soybean (Glycine max) physiology, growth and yield." *Global Change Biology*, 8:695-709 (2002).
- **Ainsworth, E.A.**, Davey, P.D., Hymus, G.J., Drake, B.G., and Long, S.P., "Interand intraspecific variation in the response of photosynthesis to elevated [CO2] in a Florida scrub oak community." *Proceedings of the 12<sup>th</sup> International Congress on Photosynthesis*. Brisbane, Australia (2001).
- **Busch, C.B.,** Atkinson, B.A., Eto, J.H., Turiel, I., and McMahon, J.E., "Utility DSM Rebates for Electronic Ballasts: National Estimates and Market Impact (1992-1997)," Environmental Energy Technologies Division, LBNL Report 41928, October 2000.
- **Busch, C.B.,** Sathaye, J.A., Arthuro-Sanchez-Azofeifa, G., "Estimating the Greenhouse Gas Benefits of Forestry Project: A Costa Rican Case Study," Environmental Energy Technologies Division, LBNL Report 42289, July 2000.
- **Branstetter, M.L.**, Famiglietti, J.S., Craig, A.P., and Washington, W.M., "Investigation of the sensitivity of global oceans to continental runoff using the PCM parallel climate model." *11<sup>th</sup> Symposium on Global Change Studies*, American Meteorological Society (AMS) 2000 meeting, Long Beach, CA, January 2000, AMS Preprint P1.3, pp. 90-91 (2000).
- Drayton, P.J., **Blazer, C.A.**, Marley, N.A., and Gaffney, J.S., "Improved Instrumentation for Near Real-time Measurement of Reactive Hydrocarbons, NO<sub>2</sub>, and Peroxyacyl nitrates (PANs)." Symposium on Atmospheric Chemistry Issues in the 21<sup>st</sup> Century, American Meteorological Society (AMS) 2000 meeting, Long Beach, CA, January 2000, AMS Preprint 3.1, p. 56-59 (2000).
- Doskey, P.V., **Bialk, H.M.**, "Automated Sampler for the Measurement of Nonmethane Organic Compounds." *Environmental Science & Technology*, 35(3), 591-594 (2001).
- Gaffney, J.S., Marley, N.A., Drayton, P.J., Cunningham, M.M., **Baird, J.C.**, and Dintaman, J., "Phoenix, Arizona Revisited: Indications of Aerosol Effects on O<sub>3</sub>, NO<sub>2</sub>, UV-B, and NO<sub>3</sub>." Symposium on Atmospheric Chemistry Issues in

- the 21<sup>st</sup> Century, American Meteorological Society (AMS) 2000 meeting, Long Beach, CA, January 2000, AMS Preprint 2.4, p. 43-50 (2000).
- Gaffney, J.S., Marley, N.A., Drayton, P.J., Doskey, P.V., Kotamarthi, V.R., Cunningham, M.M., **Baird, J.C.**, Dintaman, J., and **Hart, H.L.**, "Field Observations of Regional and Urban Impacts on NO2, Ozone, UV-B, and Nitrate Radical Production Rates: Nocturnal Urban Plumes and Regional Smoke Effects." *Atmospheric Environment*, 36, 825-833 (2002).
- Gaffney, J.S., Marley, N.A., and **Ravelo, R.**, "Puerto Rico 2002: Field Studies to Resolve Aerosol Processes." *Symposium on Atmospheric Chemistry Issues in the 21*<sup>st</sup> Century, American Meteorological Society (AMS) 2000 meeting, Long Beach, CA, January 2000, AMS Preprint 2.3, p. 37-42 (2000).
- Goldstein, A.H., Schade, G.W., and **Dreyfus, G.B.**, "Whole Ecosystem Measurements of Biogenic Hydrocarbon Emissions." Final Report, State of California Air Resources Board, Award No. 98-328, 85 pages (2001).
- **Higgins, P.A.T.,** Jackson, R.B., desRosier, J.M., Field, C.B. "Root production and turnover in a California annual grassland under elevated atmospheric carbon dioxide." *Global Change Biology* 8(9):841-850 (2002).
- **Higgins, P.A.T.,** Masterandrea, M.D., Schneider, S.H. "Dynamics of climate and ecosystem coupling: abrupt changes and multiple equilibria." *Philosophical Transactions of the Royal Society of London series B-Biological Sciences*. 357(1421):647-655 (2002).
- Huston, M.A. and **McBride**, **A.C.**, 2002. "Evaluating the relative strengths of biotic versus abiotic controls on ecosystem processes." In *Biodiversity and Ecosystem Functioning: Synthesis and Perspectives*. M. Loreau, S. Naeem, and P.Inchausti, eds. Oxford University Press, pp. 47-60.
- Long, S.P., **Ainsworth, E.A.**, Bernacchi, C.J., Davey, P.A., Naidu, S.L., and Zhu, X., "Photosynthetic dimensions of global change." *Proceedings of the 12<sup>th</sup> International Congress on Photosynthesis*. Brisbane, Australia (2001).
- Marley, N.A., Gaffney, J.S., **Baird, J.C.**, **Blazer, C.A.**, Drayton, P.J., and Frederick, J.E., "An Empirical Method for the Determination of the Complex Refractive Index of Size-Fractionated Atmospheric Aerosols for Radiative Transfer Calculations," *Aerosol Science and Technology* 34: 535-549 (2001).
- Marley, N.A., Gaffney, J.S., **Baird, J.C.**, **Blazer, C.A.**, Drayton, P.J., and Frederick, J.E., "The Determination Of Scattering And Absorption Coefficients Of Size-Fractionated Aerosols For Radiative Transfer Calculations." *Aerosol Science & Technology*, 34, 535-549 (2001).

- **Mastrandrea, M.D.,** Schneider, S.H., "Integrated assessment of abrupt climatic changes." *Climate Policy 1,* 433-449, (2001).
- Török, K., Szili-Kovács, T., Halassy, M., Tóth, T., Hayek, Zs., Paschke, M.W., and **Wardell, L.J.**., "Immobilization of soil nitrogen as a possible method for the restoration of sandy grassland," *Applied Vegetation Science* 3: 7-24, 2000.
- **Wardell, L.J.** and Harrison, B.; "CO2 Study of a Desert Soil Site with Varying Carbonate Deposition," *Proceedings from the Annual Conference of The Friends of the Pliestocene*; Socorro, NM; 1998.
- **Wardell, L.J.**; Kyle, P.R.; Dunbar, N.; and Christenson, B.R.; "White Island, New Zealand: Carbon dioxide and sulfur dioxide emissions rates and melt inclusion studies," *Chemical Geology*, 177:1/2, 2001.
- **Wardell, L.J.** and Kyle, P.R.; "Carbon Dioxide Emissions from Mt. Erebus, Antarctica," *Antarctic Journal of the United States*, 1999.

### In Press:

- **Dreyfus, G.B.**, Schade, G.W., and Goldstein, A.H., "Observational constraints on the contribution of isoprene oxidation to ozone production on the western slope of the Sierra Nevada, CA." *Journal of Geophysical Research-Atmospheres* (2002).
- **Wardell, L.J.,** and Kyle, P.R., "Volcanic CO2 from ice towers fumaroles on Mt. Erebus volcano, Antarctica." *Special monograph sercies on volcanic gases by the Geologic Society of London* (2002).

## **Submitted:**

- Jaffe, D.A., McKendry, I., Anderson, T., and **Price, H.U.**, "Six Episodes of Trans-Pacific Transport of Air Pollutants." Submitted to *Atmospheric Environment* (2002).
- **Higgins, P.A.T.**, and Vellinga, M. "Ecosystem responses to abrupt climate change: teleconnections, scale, and the hydrological cycle." Submitted (2002).

- **Higgins, P.A.T.**, and Higgins, M.W. "A healthy reduction in oil consumption and carbon emissions." Submitted (2002).
- **Higgins, P.A.T.** "Climate Change: Complexity, Chaos and Order." Submitted to *Paradigms of Change*. (2002)
- **Price, H.U.**, Jaffe, D., Doskey, P., McKendry, I., and Anderson, T., "Vertical profiles of O3, aerosols, CO and NMHCs in the Northeast Pacific during the ACE-ASIA and TRACE-P experiments." Submitted to *J. Geophys. Res.* For Trace-P special issue (2002).
- **Reisen, F.**, Wheeler, S., and Arey, J. "Methyl- and Dimethyl-/Ethyl-Nitronaphthalenes Measured in Ambient Air in Southern California." Submitted to *Atmospheric Environment* (2003).
- Schade, G.W., **Dreyfus, G.B.**, and Goldstein, A.H., "Atmospheric methyl-tertiary-butyl-ether (MTBE) at a rural mountain site in California." Submitted to *ASA Journal of Environmental Quality* (2001).
- Shaw, D.C., Franklin, J.F., Klopatek, J., Freeman, E., Bible, K., Newton, T., Greene, S., and **Wade-Murphy, J.**. "Ecological Setting of the Wind River Old-Growth Forest." Submitted to *Ecosystems* (2000).
- Snow, J.A., Dennison, J.B., Jaffe, D.A., **Price, H.U.**, Vaughan, J.K., Lamb, B., and McKendry, I.G., "Aircraft measurements of air quality in the Puget Sound: Summer 2001." Submitted to *Atmospheric Environment* (2002).
- **Wardell, L.J.,** Kyle, P.R., and Counce, D., "Volcanic metal and halogen emissions rates from White Island, New Zealand and Mt. Erebus, Antarctica based on the chemical trap method." Submitted to *AGU Monograph from Chapman Conference on Volcanoes and Earth's Atmosphere* (2002).

### **Papers presented at National Meetings:**

- **Ainsworth, E.A.**, "Inter- and interaspecific variation in the response of photosynthesis to elevated [CO2] in a Florida scrub oak community." Invited talk, 12<sup>th</sup> Annual International Photosynthesis Congress. Brisbane, Australia (2001).
- **Blazer, C.A.**, Marley, N.A., Drayton, P.J., and Gaffney, J.S., "Real-time Olefin Monitor Based Upon Ozone Chemiluminescent Reactions." Poster presented at the National American Chemical Society Meeting, Undergraduate Research Session, New Orleans, LA, August 23, 1999.

- **Branstetter, M.L.**, Famiglietti,, J.S., Washington, W.M., and Craig, A.P., "Using a 200-year simulation of a fully-coupled climate system model to investigate the role of the continental runoff flux on the global climate system." Presented at the Climate Variability, the Oceans, and Societal Impacts Symposium, American Meteorological Society, Albuquerque, 2001.
- **Branstetter, M.L.**, Famiglietti, J.S., Craig, A.P., and Washington, W.M., "Investigation of the sensitivity of global oceans to continental runoff using the PCM parallel climate model." 11<sup>th</sup> Symposium on Global Change Studies, American Meteorological Society, Long Beach, 2000
- **Branstetter, M.L.**, Mohr, K.I., and Famiglietti, J.S., "A coupled biosphere-atmosphere climate model study of global land cover change and its impact on regional and global hydrologic cycles." Conference on Hydrology, American Geophysical Union Fall 1999 meeting, San Francisco, 1999
- Drayton, P.J., **Blazer, C.A.**, Marley, N.A., and Gaffney, J.S., "Improved Instrumentation for Near Real-time Measurement of Reactive Hydrocarbons, NO<sub>2</sub>, and Peroxyacyl nitrates (PANs)." Oral presentation to the American Meteorological Society (AMS) 2000 meeting, Symposium on Atmospheric Chemistry, Long Beach, CA, January 2000.
- **Dreyfus, G.B.**, Schade, G.W., and Goldstein, A.H., "Investigating the contribution of isoprene oxidation to ozone production." Oral presentation to the American Geophysical Union, 2000 Fall Meeting, San Francisco, CA, (A52H10) 2000.
- **Farmer, E.C.**, Kaplan, A., deMenocal, P.B., Ortiz, J., "Towards a joint faunal-isotopic transfer function for reconstructing past changes in tropical upper-ocean thermal structure." EOS Supplement, Fall 1999 AGU Meeting, San Francisco, 1999
- Gaffney, J.S., Marley, N.A., Drayton, P.J., Cunningham, M.M., **Baird, J.C.**, and Dintaman, J., "Phoenix, Arizona Revisited: Indications of Aerosol Effects on O<sub>3</sub>, NO<sub>2</sub>, UV-B, and NO<sub>3</sub>." Oral presentation to the American Meteorological Society (AMS) 2000 meeting, Symposium on Atmospheric Chemistry, Long Beach, CA, January 2000.
- Gaffney, J.S., Marley, N.A., and **Ravelo, R.**, "Puerto Rico 2002: Field Studies to Resolve Aerosol Processes." Oral presentation to the American Meteorological Society (AMS) 2000 meeting, Symposium on Atmospheric Chemistry, Long Beach, CA, January 2000.
- **Higgins, P.A.T.** "Ecosystem responses and feedbacks to abrupt climate change." The American Geophysical Union 2002 Fall Meeting. San Francisco, CA, December 10, 2002.

- **Higgins, P.A.,** "State transitions in ocean circulation as a potential driver of ecosystem change at a global scale." The Ecological Society of America 87<sup>th</sup> Annual Meeting, Tucson, AZ, August 6, 2002.
- **Higgins, P.A.T.,** "Climate Change: Complexity, Chaos, and Order." May 23, 2002. Paradigms of Change Workshop. University of Bonn. Bonn, Germany.
- **Higgins, P.** and Schneider, S.H., "Potential Ecosystem Change in the North Atlantic Under Greenhouse Gas Increase and Thermohaline Circulation Collapse," Ecological Society of America annual meeting, 2001.
- **Higgins, P.A.T.** and Schneider, S.H., "Ecosystem change and climate feedback under greenhouse gas increase and thermohaline circulation collapse." November 9, 2001. Berkeley Atmospheric Sciences Symposium. University of California. Berkeley, California.
- **Higgins, P.A.T.,** "Multiple equilibria and irreversibility in the climate system." October 9, 2001. Response Options to Rapid or Severe Climate Change. Department of Energy. Germantown, Maryland (via uplink from Sandia National Laboratory).
- **Higgins, P.A.T.** and Schneider, S.H. "Potential ecosystem change in the North Atlantic under greenhouse gas increase and thermohaline circulation collapse." August 12, 2001. Ecological Society of America.
- Jaffe, D.A., Anderson, T., Kotchenruther, R., Beine, H., **Price, H.**, Blake, D., Bottenheim, J., Harris, J., "Transport of Atmospheric Pollutants From Asia to North America: 1999 Update." 1999 Fall meeting of the American Geophysical Union, December 1999.
- Marley, N.A., **Blazer,C.A.**, Drayton, P.J., and Gaffney, J.S., "Ozone Chemiluminescence Detection: A Potential Sensitive And Specific Detection System For Olefin Monitoring," invited oral presentation at the Symposium on Analytical and Safety-Related Issues in Olefins Units, National American Chemical Society Meeting, New Orleans, LA, Aug. 22-26, 1999.
- Marley, N.A., Gaffney, J.S., **Baird, J.C.**, **Blazer, C.A.**, and Drayton, P.J., "Determination Of The Complex Refractive Index Of Carbonaceous Soot For Radiative Transfer Calculations." Paper submitted for presentation at the Seventh International Conference on Carbonaceous Particles in the Atmosphere, San Juan, Puerto Rico, November 26-29, 2000.
- Marley, N.A., Gaffney, J.S., Drayton, P.J., and **Ravelo, R.M.**, "Northeast Oxidant and Particulate Study: Preliminary Results from the Centerton, New Jersey

- Field Site." Oral presentation submitted to the American Meteorological Society National Meeting, Millenium Symposium on Atmospheric Chemistry: Past, Present, and Future. Albuquerque, NM, January 2001.
- **McMeeking, G.R.**, Whiteman, C.D., Powell, S., and Clements, C.B., "Terrain and Ambient Wind Effects on the Warming Footprint of a Wind Machine." Paper submitted for presentation at the 25<sup>th</sup> Conference on Agricultural and Forest Meteorology, Norfolk, VA, May 2002.
- Newton, T., Paw U, K.T., Falk, M., **Wade-Murphy, J.**, Shaw, R.H., King, T., Hsiao, T.C., Pyles, R.D., Matista, A., Sunquist, A., Park, Y-S., and Wabeh, H.. "The Microclimate of a 65 m Tall, Old-Growth Coniferous Forest." Oral presentation to the American Meteorological Society (AMS) 2000 meeting, 24<sup>th</sup> Conference on Agriculture and Forest Meteorology, Davis, CA, 16 August 2000.
- **Price, H.U.**, Jaffe, D.A., and Doskey, P.V., "Airborne Measurements of CO, O3, NMHCs and Aerosol Scattering in the Northeast Pacific During PHOBEA-II." American Chemical society Northwest Regional Meeting, Seattle, WA, 15 June 2001.
- **Rodriguez, V.**, Gaffney, J.S., and Marley, N.A., "Black Carbon Measurements Made with an Aethalometer in Chicago, Illinois." Paper submitted for poster presentation at the National American Chemical Society Meeting, Chemical Education, Undergraduate Environmental Chemistry Poster Symposium, Orlando, FL, April 2002.
- **Wardell, L.J.,** Kyle, P.R., and Counce, D., "Volatile metal and halogen flux measurements from While Island, New Zealand and Mt. Erebus, Antarctica using chemical traps." Chapman Conference on Volcanoes and the Earth's Atmosphere, American Geophysical Union, Santorini, Greece, June 17-21, 2002.
- **Wardell, L.J.,** and Kyle, P.R., "CO2 flux measurements from ice tower fumaroles on Mt. Erebus volcano, Antarctica." Peter Francis memorial meeting on volcanic gases, The Geological Society of London, October 25-26, 2001.
- **Wardell, L.J.** and Harrison, J.B.J., "Carbon dioxide soil gas studies in the Sevilleta," 1999 NMGS Spring Conference, Socorro, NM, April 9, 1999. Soil CO2 Dynamics at the Sevilleta National Wildlife Refuge; 1999 Sevilleta Research Symposium, Sevilleta NWR, January, 1999.
- **Wardell, L.J.,** Kyle, P.R., and Chaffin, C.; "CO2 emissions from Mt Erebus volcano, Antarctica," 8th International Symposium on Antarctic Earth Science, Wellington, New Zealand, July, 1999.

- **Wardell, L.J.,** "Soil CO2 Dynamics at the Sevilleta National Wildlife Refuge," 1999 Sevilleta Research Symposium, Sevilleta NWR, January, 1999.
- **Wardell, L.J.** and Kyle, P.R.; "CO2 flux measurements of an active volcano," Poster; UNAVCO Annual Community Meeting, Boulder, CO, April 7-9, 1999.
- Wardell, L.J., "Carbon Dioxide Soil Gas Studies in the Sevilleta," 1999 New Mexico Geological Society Spring Conference, Socorro, NM, April 9, 1999.
- **Wardell, L.J.,** "Volcanic Carbon Dioxide Emission Rates; White Island, New Zealand and Mt. Erebus Antarctica," American Geophysical Union, 1998 Fall Meeting, San Francisco, CA, (V71C09) 1998.
- **Wardell, L.J.** and Harrison, B., "CO2 Study of a Desert Soil Site with Varying Carbonate Deposition," Proceedings from the Annual Conference of The Friends of the Pliestocene; Socorro, NM; 1998.
- Weiss, P.S., Jaffe, D., Prestbo, E., McClintick, A., **Price, H.**, "Spring and Summer Observations of Carbon Monoxide, Ozone, Non-Methane Hydrocarbons and Total Gaseous Mercury at Cheeka Peak, Washington During the PHOBEA-II Campaign." 2001 Fall meeting of the American Geophysical Union, December, 2001.
- **Werner, C.**, Wyngaard, J. C., Brantley, S. L., "Eddy-Correlation Measurement of Hydrothermal Gases," *Geophys. Res. Lett.* 27(18):2925 (2000).

#### **Posters**

- **Ainsworth, E.A.**, "The response of photosynthesis to 10 years of free air CO2 enrichment in Lolium perenne." American Society of Plant Biologists Annual Meeting, Denver, CO, 2002.
- **Ainsworth, E.A.**, "Inter- and intraspecific variation in the response of photosynthesis to elevated CO2 in a Florida scrub oak community." Environmental Horizons 2002, UIUC, 2002.
- **Airnsworth, E.A.**, "Microsatellite determination of the genetic structure of Quercus geminata and Q. myrtifolia: Assessing within-population variation at the Smithsonian elevated CO2 research site." DOE Terrestrial Science Team Meeting, Argonne National Laboratory, Argonne, IL, 2001.

- **Gordon, W.S.,** Famiglietti, J.S., Hibbard, K.A., Kittel, T.G., and VEMAP Members, "Terrestrial ecosystem model validation using streamflow data: preliminary analyses of VEMAP Phase 2 model experiments," 1999 Fall Meeting of the American Geophysical Union, San Francisco, CA, 1999.
- **Higgins, P.A.T.** "Ecosystem responses and feedbacks to abrupt climate change." Berkeley Atmospheric Sciences Center 2nd Annual Symposium. Berkeley, CA, November 8, 2002.
- **Iorio, J.P.** and Guilderson, T., "Holocene Climate of the Mesotropics and Comparison of Geologic Climate Reconstruction with PMIP Simulations of Climate at 6000 <sup>14</sup>C Years Ago." Oral presentation to the American Geophysical Union meeting, Washington D.C., May 28-31, 2002.
- Jaffe, D.A., **Price, H.**, Weiss, P., McClintick, A., McKendry, I., "Ozone-Aerosol Relationships in the Northeast Pacific During ACE-Asia." 2001 Fall meeting of the American Geophysical Union, December 2001.
- **Kueppers, L.M.** and Harte, J., "Soil carbon dynamics along a forest type and elevation gradient in the Rocky Mountains: Ecological feedbacks to climate change." Poster presentation. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 15-19, 2000.
- **Price, H.U.**, Jaffe, D.A., Doskey, P.V., and McKendry, I., "Airborne Measurements of NMHCs, O3, CO and Aerosol Scatter in the Northeastern Pacific During the Spring of 2001 PHOBEA-II Campaign." Fall 2001 meeting of the American Geophysical Union, San Fransisco, CA, December 2001.
- Rose, W.I., Teasdale, R., Bailey, J., Chertkoff, D., Coombs, M., Eisinger, C., Hidayat, D., Riley, C., Rodriquez, L., Sahetapy-Engel, S., **Wardell, J.**, Witter, J., and Young, K., "Southwest Pacific volcano tour, July 2000: Prototype for coordinated, multi-university graduate programs in volcanology," Invited Poster, American Geophysical Union, 2000 Fall Meeting, San Francisco, CA, (V51C-07) 2000.
- **Wardell, L.J.,** Kyle, P.R., Dunbar, N.. and Christenson, B.R., "Carbon dioxide and sulfur dioxide flux measurements and melt inclusion results from White Island volcano, New Zealand," International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly, Bali, Indonesia, July, 2000.
- **Wardell, L.J.,** Kyle, P.R., and Chaffin, C., "CO2 emissions from Mt Erebus volcano, Antarctica," 8th International Symposium on Antarctic Earth Science, Wellington, New Zealand, July, 1999.

**Wardell, L.J.;** and Kyle, P.R., "CO2 flux measurements of an active volcano," UNAVCO Annual Community Meeting, Boulder, CO, April 7-9, 1999.